

U.S. Patent Application SN 10/816,280
Amendment Filed in Response to
Office Action of 7/25/05

ATTORNEY DOCKET NO: BOCCUZZI 2-27-3

Amendments to the Claims

Please amend the claims to read as follows:

1. (Canceled)

2. (Canceled)

3. (Currently Amended) A voltage-controlled oscillator comprising:
 a plurality of inductor elements;
 a varactor element connected in parallel with first of said inductor elements, said
 varactor element comprising serially-connected first and second same-type varactors,
 each having a well side and a gate side;
 first means for applying a first tuning voltage to a node common to the first of
 said inductor elements, and for applying said first tuning voltage to said gate-side of each
 of said first and second same-type varactors;
 second means for applying a second tuning voltage to a node common to said
 well-sides of said first and second same-type varactors; and
 ~~The oscillator as recited in claim 2, further comprising:~~
 third means for applying to apply a bias voltage to a node common to said second
 of said inductor elements.

4. (Currently Amended) A voltage-controlled oscillator comprising:
 a plurality of inductive elements comprising inductively coupled first and second
 inductor elements, wherein said first inductor elements are series connected, and said
 second inductor elements are series connected;
 a varactor element connected in parallel with said first inductor elements, said
 varactor element comprising serially-connected first and second same-type varactors,
 each having a well side and a gate side;
 first means for applying a first tuning voltage to a node common to said first
 inductor elements, and for applying said first tuning voltage to said gate-side of each of
 said first and second same-type varactors;

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second means for applying a second tuning voltage to a node common to said well-sides of said first and second same-type varactors;
~~The oscillator as recited in claim 1, wherein~~
said first and second inductor elements of corresponding inductive elements ~~are~~ being commonly wound; and
~~corresponding serially-connected~~ said first and second inductor elements are mutually coupled in-phase.

5. (Currently Amended) A voltage-controlled oscillator comprising:
a plurality of inductively coupled inductor elements;
a first varactor element connected in parallel with a first of said inductor elements,
said varactor element comprising serially-connected first and second same-type varactors,
each having a well side and a gate side;

first means for applying a first tuning voltage to a node common to the first of said inductor elements, and for applying said first tuning voltage to said gate-side of each of said first and second same-type varactors;

second means for applying a second tuning voltage to a node common to said well-sides of said first and second same-type varactors; and

~~The oscillator as recited in claim 1, further comprising:~~

a second varactor element connected in parallel with second of said inductor elements, ~~associated with said inductive elements,~~ said second varactor element comprising serially-connected same-type ~~first and second~~ third and fourth varactors, each having a well side and a gate side; and

third means to apply for applying said second tuning voltage to a node common to said second varactor element first and second third and fourth varactors, ~~wherein said second tuning voltage is applied to~~ and at said well-sides of ~~each of said first and second~~ said third and fourth varactors.

6. (Original) The oscillator as recited in claim 5, wherein said second voltage is comprises a bias voltage.

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7. (Currently Amended) The oscillator as recited in claim 5, wherein, said first and second inductor elements of corresponding inductive elements are reversely wound; and corresponding said first and second inductor elements are mutually coupled ~~in~~ out of phase.

8. (Currently Amended) The oscillator as recited in claim 3, wherein said bias voltage is substantially equal to the common-mode value of said first and second tuning voltages, said common-mode value being substantially equal to half the of an input supply voltage for said oscillator.

9. (Currently Amended) A multi-frequency band, voltage controlled tuner comprising:

a parallel arrangement comprised of a voltage controlled oscillator, a multi-band switching means and a transconductor; and

first means to provide for providing a bias voltage to said oscillator; ~~wherein~~
said oscillator comprising; ~~comprises first and second inductive elements, each comprising first and second inductively coupled inductor elements wherein respective~~
having serially connected first inductor elements, and serially connected second inductor
elements, are serially connected; and first and second varactor elements, each comprising
serially connected first and second same-type varactors electrically connected in parallel
~~to said serially connected~~ with said first inductor elements and said second inductor
elements, respectively; and

second means to provide for providing common node voltages to a common node
~~common~~ within each of said first and said second varactor elements; and

said common node further being common to said first inductor elements, and
common to said second inductive inductor elements.

10. (Currently Amended) The tuner as recited in claim 9, wherein said common node
voltages ~~are selected from the group consisting of~~ comprise; a first tuning voltage, a
second tuning voltage and a bias voltage.

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11. (Currently Amended) The tuner as recited in claim 9, wherein said multi-band switching means comprises:

a plurality of further varactor elements electrically connected in parallel, each of said further varactor elements comprising two further varactors serially connected ~~through an associated~~ at a well-side of a corresponding said further varactor element, and third means to apply for applying a voltage to a common node of said two further varactors. ~~each of said varactors.~~

12. (Currently Amended) The tuner as recited in claim 9, wherein said transistor is operable as comprises a negative resistance device.

13. (Currently Amended) The tuner as recited in claim 9, ~~further comprising:~~ wherein said first means comprises a source of current or voltage to provide ~~a known said~~ bias voltage. ~~to said voltage controlled oscillator, said source selected for the group consisting of: current, voltage.~~

14. (Currently Amended) The tuner as recited in claim ~~13~~, 9, wherein said bias voltage is substantially equal to the common node ~~value~~ values of said ~~first and second tuning~~ common node voltages.

15. (New) The oscillator as recited in claim 3, wherein, said first and second inductor elements are inductively coupled, said first inductor element comprises series connected first inductors, and said second inductor element comprises series connected second inductors.

16. (New) The oscillator as recited in claim 5, wherein, said first inductor element comprises series connected first inductors, and said second inductor element comprises series connected second inductors.